

# 1994 Editorial Index

The following listing is a complete editorial index of the articles and departments, arranged by subject, that appeared in 1994. The month and page number of each are provided plus descriptions of feature articles.

Title	Month	Pg.	Title	Month	Pg.
<b>Automation and controls</b>			<b>Sag Calculations for Messenger-Supported Cables-Part 2</b>	Aug.	94
<i>Retrofitting the World Trade Center Fire Alarm System</i>	Nov.	20	<i>The Basics of Cable Pulling Calculations-Part 1</i>	Sept.	86
<i>New fire alarm/life safety system features redundant risers and addressable devices, ensuring an effective, reliable management scheme.</i>			<i>The Basics of Cable Pulling Calculations-Part 2</i>	Oct.	78
<i>Assuring Quality in Software-Based Fire Alarm Systems</i>	Nov.	25	<i>The Basics of Cable Pulling Calculations-Part 3</i>	Nov.	70
<i>To enhance fire safety, procedures should be strengthened to assure quality and reliability of software-based systems.</i>			<i>The Basics of Cable Pulling Calculations-Part 4</i>	Dec.	74
<i>Short-Circuit Withstand Ratings For Control Panels</i>	Nov.	34	<b>Computers And Power Conditioning</b>		
<i>Confusion over short-circuit interruption and withstand have led designers and engineers to mistakenly believe that control panels are protected by up-stream overcurrent protection devices.</i>			<i>Six-pulse Conversion and Harmonics-Part 2</i>	Jan.	16
			<i>The benefits of 12-pulse conversion can be obtained using parallel 6-pulse devices in a "12-pulse equivalent" configuration.</i>		
			<i>Harmonics: Causes, Problems, Solutions-Part 1</i>	Jan.	35
			<i>Harmonics can cause equipment to malfunction and fail. The solution is not to oversize equipment but to reduce the harmonics at the source.</i>		
			<i>Electrical Noise and EMI-Part 1</i>	Feb.	14
			<i>Troubleshooting the path of EMI can result in confusing indicators.</i>		
			<i>Harmonics: Causes, Problems, Solutions-Part 2</i>	Feb.	47
			<i>Harmonics can cause equipment to malfunction and fail. The solution is not to oversize equipment but to reduce the harmonics at the source.</i>		
			<i>Ad-Hoc Subcommittee on Nonlinear Loads Reports</i>	Feb.	92
			<i>Electrical Noise and EMI-Part 2</i>	March	16
			<i>Troubleshooting the path of EMI can result in confusing indicators.</i>		
			<i>Dirty Power and Sensitive Equipment Damage</i>	April	18
			<i>Voltage distortion from SCR controllers can negatively affect sensitive equipment powered from the same source.</i>		
			<i>Harmonic Interaction and Varying Impedances</i>	May	18
			<i>Sizable impedance variances on alternate sources feeding large nonlinear loads can create high voltage distortion and transfer or paralleling problems.</i>		
			<i>Beware of Single-Phase Harmonic Interaction-Part 1</i>	June	18
			<i>The popularity of PCs has created wire and transformer overheating problems.</i>		
			<i>Beware of Single-Phase Harmonic Interaction-Part 2</i>	July	13
			<i>PCs and workstation computers have created various overheating problems.</i>		
			<i>Beware of Single-Phase Harmonic Interaction-Part 3</i>	Aug.	17
			<i>Methods of coping with and eliminating triplen harmonic currents can help alleviate transformer and neutral conductor overheating problems.</i>		
			<i>Benefits of Using a Harmonic Monitoring Program</i>	Sept.	25
			<i>If you monitor power systems for harmonics you can cut cost and time.</i>		
<b>Business</b>					
<i>Value-Adding with New Technologies</i>	Jan.	7			
<i>It's extremely important that sufficient time and effort be invested up front in adequately defining goals and objectives before latching on to a "high tech" idea.</i>					
<i>Software Training Programs: The New Learning Mode</i>	May	34			
<i>How can people with varying schedules study complex technical subjects?</i>					
<i>Inspection budgets and public policy</i>	June	9			
<i>Working Toward Improving Working Drawings</i>	July	9			
<i>How Smart Should Intelligent Buildings Be?</i>	Oct.	49			
<i>Should every new building be intelligent and should every existing building be retrofitted to become intelligent?</i>					
<i>Diversification or Specialization, Which Path to Success?</i>	Oct.	9			
<i>Daylighting Design Fits Into an Energy-Conscious Market</i>	Nov.	7			
<b>Calculations And Design</b>					
<i>The Basics of Alternating Current</i>	Jan.	64			
<i>The Basics of Conductor Reactance and Voltage Drop-Part 1</i>	Feb.	74			
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<i>The Basics of Conductor Reactance and Voltage Drop-Part 4</i>	May	124			
<i>The Basics of Wire &amp; Cable</i>	June	90			
<i>Sag Calculations for Messenger-Supported Cables-Part 1</i>	July	86			

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## SPECIAL SECTION

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<hr/> <b>Energy Cost And Management</b>			<b>Install Premium-Efficiency Motors Properly for Maximum Cost Savings</b> <i>Correct installation of PE motors is vital to performance and value.</i>	Sept.	54
<b>Cogeneration reduces medical center costs</b> <i>Two 500kW engine-generator sets have an overall efficiency of greater than 66% when providing electric power with waste heat recovered for steam and hot water.</i>	Feb.	39	<b>Answering Twenty Key Questions About Premium-Efficiency Motors</b> <i>There's a great deal of mystery and a lot to learn about the selection, installation, and economics of premium-efficiency motors.</i>	Oct.	29
<b>Adjustable Speed Drives Can Be Big Money Makers</b> <i>Premium-Efficiency Motors Slash Electric Costs</i> <i>A large industrial plant replaced over 300 standard motors with premium efficiency models, greatly reducing its power bills.</i>	March	11	<b>Premium-Efficiency Motors Drive Steel Mill Systems</b> <i>In a steel strip mill, premium-efficiency motors save energy, meet demands for precise speed control, and operate in tough conditions.</i>	Oct.	65
<b>The Saving of Energy is Spreading Like Wildfire</b> <i>What Makes a Motor More Efficient?</i> <i>Key factors of modern energy-efficient motors determine their efficiency.</i>	May	11	<b>High Capacity Cable Bus Updates</b> <i>Plant's Primary Power</i>	Dec.	24
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<b>Install Premium-Efficiency Motors Properly for Maximum Cost Savings</b> <i>Correct installation of PE motors is vital to performance and value.</i>	Aug.	33	<b>Telecom Reliability is Key at Banking Data Center</b> <i>Flexibility and compatibility with future systems are added features of this modern telecommunications system.</i>	Jan.	31
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			<b>Premium-Efficiency Motors Drive Steel Mill Systems</b> <i>In a steel strip mill, premium-efficiency motors save energy, meet demands for precise speed control, and operate in tough conditions.</i>	Oct.	65

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<b>Retrofitting the World Trade Center</b> <b>Fire Alarm System</b> <i>New fire alarm/life safety system features redundant risers and addressable devices, ensuring an effective, reliable management scheme.</i>	Nov.	20	<b>Effective Grounding of Electrical Systems-Part 3</b> <i>An understanding of grounding is essential for an electrical system to work correctly.</i>	April	67
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<b>Cogeneration Reduces Medical Center Costs</b> <i>Two 500kW engine-generator sets have an overall efficiency of greater than 66% when providing electric power with waste heat recovered for steam and hot water.</i>	Feb.	39	<b>L.A. Quake Causes Unique Electrical Problems</b> <i>Separation of compression type conduit fittings and shifting of pad mounted switchgear are but a few of the damages to electrical systems in an insurance company's office building.</i>	March	33
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<b>Effective Grounding of Electrical Systems-Part 2</b> <i>An understanding of the various ground resistance testing methods is essential for an electrical system to work correctly.</i>	Feb.	59	<i>Correct installation of PE motors is vital to performance and value.</i>	Sept.	54
<b>Effective Grounding of Electrical Systems-Part 3</b> <i>An understanding of grounding is essential for an electrical system to work correctly.</i>	April	67	<b>Hospital Emergency System Wiring Rules</b> <i>Are raceways required for all feeders, even at medium voltage, on the supply side of hospital emergency system transfer equipment?</i>	Sept.	80
<b>Effective Grounding of Electrical Systems-Part 4</b> <i>An understanding of correct grounding practices assures correct system operation.</i>	June	57	<b>Wiring Mechanized Mail Handling Equipment</b> <i>Attention to shielding, grounding, and electric isolation as well as proper layout of wiring and orientation of equipment assures efficiency.</i>	Oct.	43
<b>When Better Grounding Than Code Minimum</b> <b>Doesn't Meet Code</b> <i>If you augment the grounding, go all the way or not at all.</i>	June	86	<b>High Capacity Cable Bus Updates</b> <b>Plant's Primary Power</b> <i>This electrical modernization project includes installation of multiple runs of cable bus, pulling of 15kV cables, terminations, and switchgear.</i>	Dec.	24
<b>What to Know About High-Resistance Grounding</b> <i>When electrical power shutdowns can cause serious harmful effects, a means of helping avoid such events is to use a high-resistance grounding system.</i>	July	37	<b>Installing PVC-Coated Conduit Correctly</b> <i>Using the correct tools and devices during installation helps to maintain the integrity of the PVC coating.</i>	Dec.	36
<b>Sizing Equipment Grounding Conductor Taps</b> <i>The Code does not directly cover sizing separate equipment grounding conductors associated with taps from larger feeders.</i>	July	82	<b>Solving Common Switching Problems</b> <i>What are some simple and inexpensive methods of switching lighting or HVAC loads using readily available devices?</i>	Dec.	52
<b>Can Ground Wires be Run Through Meter</b> <b>Enclosures at Service Entrance?</b>	Oct.	16	<b>Upgrading a Residential Service</b> <i>Many NE Code rules must be met when replacing an existing residential service with a new one.</i>	Dec.	56
<b>Installation Methods</b> <b>Effective Grounding of Electrical Systems-Part 1</b> <i>Understanding the purpose and correct practices of grounding is essential for an electrical system to work correctly.</i>	Jan.	47	<b>The Basics of Cable Pulling Calculations-Part 1</b> <b>The Basics of Cable Pulling Calculations-Part 2</b> <b>The Basics of Cable Pulling Calculations-Part 3</b> <b>The Basics of Cable Pulling-Part 4</b> <b>Can Ground Wires be Run Through Meter</b> <b>Enclosures at Service Entrance?</b> <b>Will a 60-Hz Transformer Work on a</b> <b>50-Hz System?</b>	Sept.	86
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<b>Lighting</b>			Installing PVC-Coated Conduit Correctly <i>Using the correct tools and devices during installation helps to maintain the integrity of the PVC coating.</i>	Dec.	36
Important Tips on HID Dimming <i>What types of HID dimming systems are available and how do they affect lamp output and color rendition?</i>	March	26	How Are Isolated DC Systems Protected? Know AFD Operation For Accurate Measurements	Sept.	12
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Practical Guide to HID Lighting Systems-Part 2 <i>HID light sources offer efficient illumination for a variety of applications.</i>	July	55	Revision of Note 8 to Ampacity Tables 310-16 through 310-19 completes a full return to the simple, logical, and straightforward method for determining conductor ampacity.		
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Online millivolt testing of contacts and OL relays can be a valuable troubleshooting procedure.			Wiring Methods for Patient Care Areas <i>Patient care area wiring methods need "redundant grounding", but more is involved.</i>	April	82
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Nine Ideas to Improve Your Electrical Maintenance <i>Modern methods assure trouble-free electrical equipment and system operation.</i>	June	49	Quizzes on the Code / Boxes—Article 370	May	14
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Can Fire Risk From Old House Wiring Be Reduced?	July	92	New Power for Hospital's Emergency System <i>An old, underpowered engine-generator set not meeting code requirements is replaced with a new diesel-powered one, without disruption of electrical service.</i>	May	39
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The 1996 NEC: The 100 Most Important Proposed Revisions <i>An advance look at the critical issues now under discussion for the next NE Code.</i>	Aug.	43	<i>Power density of 40W/sq ft drives design of facility's electrical system.</i>	May	67
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Hospital Emergency System Wiring Rules <i>Are raceways required for all feeders, even at medium voltage, on the supply side of hospital emergency system transfer equipment?</i>	Sept.	80	Zone-Selective Interlocking for Low-Voltage Switchboards <i>What to Know About High-Resistance Grounding</i>	July	33
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Taps From, or Through Transformers-Part 1 <i>Taps involving transformers are very common, and often improperly applied.</i>	Oct.	74	Sizing Equipment Grounding Conductor Taps <i>The Code does not directly cover sizing separate equipment grounding conductors associated with taps from larger feeders.</i>	July	82
Treat All Panelboards Alike?	Oct.	100	Photovoltaics: Electrical Power From Sunlight <i>Under certain conditions, photovoltaic systems can provide electric power more effectively than the local utility.</i>	Aug.	77
Quizzes on the Code/ Transformers—Article 450	Nov.	12	Paralleled Transformers Create Efficient Systems <i>Paralleling of transformers requires that each transformer carry its proportionate share of load.</i>	Sept.	61
Transformers and the 10-Ft Tap Rule <i>When a 10-ft tap begins at a transformer, particularly at a multiwire secondary, many different rules come into play.</i>	Nov.	61	Improving Power Factor for Greater Efficiency-Part 1 <i>High power factor, which can be obtained by using filters, capacitors or synchronous machines, will enhance energy savings and reduce costs.</i>	Sept.	64
Quizzes On The Code / Phase Converters, Capacitors, Etc.—Articles 455-480	Dec.	14	Generator Power Comes Through During L.A. 'Quake <i>Here's how most auxiliary generators kept running during the earthquake, and why some just couldn't make the grade.</i>	Sept.	75
Upgrading a Residential Service <i>Many NE Code rules must be met when replacing an existing residential service with a new one.</i>	Dec.	56	Taps From, or Through Transformers-Part 1 <i>Taps involving transformers are very common, and often improperly applied.</i>	Oct.	74
Long Taps Using Transformers <i>25-ft taps using transformers can be confusing, particularly when multiwire secondaries are involved.</i>	Dec.	70	Improving Power Factor for Greater Efficiency-Part 2 <i>High power factor, which can be obtained by using filters, capacitors, or synchronous machines, will enhance energy savings and reduce costs.</i>	Nov.	38
Can Ground Wires Be Run Through Meter Enclosures at Service Entrance?	Oct.	16			
<b>Power Distribution</b>					
Supplying Power to Motor From Two MCCs Through a Transfer Switch	Jan.	58			
Sizing Grounding Conductors on Large Parallel Circuits <i>On very large circuits run in parallel, equipment grounding conductors may need to be larger than individual power conductors within each raceway.</i>	Jan.	60			
Cogeneration Reduces Medical Center Costs <i>Two 500kW engine-generator sets have an overall efficiency of greater than 66% when providing electric power with waste heat recovered for steam and hot water.</i>	Feb.	39			
Cable Derating and Nonlinear Load Panelboards <i>What effect does a nonlinear load panelboard have on its feeder?</i>	Feb.	32			
Is This Zig-Zag Transformer Connection Safe?	Feb.	68			

Title	Month	Pg.	Title	Month	Pg.
<b>Transformers and the 10-Ft Tap Rule</b> <i>When a 10-ft tap begins at a transformer, particularly at a multiwire secondary, many different rules come into play.</i>	Nov.	61	<b>Telecom Reliability is Key at Banking Data Center</b> <i>Flexibility and compatibility with future systems are added features of this modern telecommunications system.</i>	Jan.	31
<b>High Capacity Cable Bus Updates Plant's Primary Power</b> <i>This electrical modernization project includes installation of multiple runs of cable bus, pulling of 15kV cables, terminations, and switchgear.</i>	Dec.	24	<b>What to Know About EIA/TIA 569</b> <i>The design of telecom distribution systems such as cable trays, conduits, poke-thrus, etc., is covered in this standard.</i>	Feb.	18
<b>Automated People Mover Requires Special Power Distribution</b> <i>Reliability and economics are the driving forces in the design of the power delivery system for driverless trains at Newark International Airport.</i>	Dec.	30	<b>Proposed Changes to EIA/TIA 568</b> <i>Technical System Bulletin changes will be incorporated into a new standard if needed.</i>	April	22
<b>Upgrading a Residential Service</b> <i>Many NE Code rules must be met when replacing an existing residential service with a new one.</i>	Dec.	56	<b>EC&amp;M's Voice/Data Engineering/Installation Guide</b> <i>What to Know About Workstation Wiring</i>	May	79
<b>Long Taps Using Transformers</b> <i>25-ft taps using transformers can be confusing, particularly when multiwire secondaries are involved.</i>	Dec.	70	<b>Recommended Specifications for Horizontal Subsystem Wiring</b> <i>Recommended Specifications for In-Building Backbone Wiring</i>	May	81
<b>How are Isolated DC Systems Protected?</b>	Sept.	12	<b>The Do's and Don'ts of UTP Wiring</b> <i>Improper installation techniques may cause voice/data signals to distort or fail.</i>	May	85
<b>Know AFD Operation for Accurate Measurements</b>	Sept.	12	<b>Testing Methods for UTP and Fiber</b> <i>Attenuation and NEXT test values are included in the proposed EIA/TIA 568-A standard; testing methods are not.</i>	May	95
<b>Will a 60-Hz Transformer Work on a 50-Hz System?</b>	Nov.	16	<b>Does Fiber to the Desk Make Sense?</b> <i>Installed cost differentials, increasing bandwidth requirements, and new switched LANs are cited in this controversial issue.</i>	June	22
<b>Specifications And Standards</b>			<b>Don't Diminish the Importance of Telecommunications Wiring</b> <i>Late attention to telecommunications wiring long after the building design and construction stages are completed usually results in installation and performance problems.</i>	Aug.	20
<b>What to Know About EIA/TIA 569</b> <i>The design of telecom distribution systems such as cable trays, conduits, poke-thrus, etc., is covered in this standard.</i>	Feb.	18		Oct.	52
<b>Ad-Hoc Subcommittee on Nonlinear Loads Reports Questions on Visible Signaling for the Hearing Impaired</b> <i>Conflicting requirements by UL and NFPA, which code enforcing bodies have adopted, and the Americans with Disabilities Act Accessibility Guidelines should be resolved.</i>	Feb.	92		Dec.	44
<b>NFPA 70E Committee Reports</b> <i>How Standards Guide Control of Motor Noise</i>	March	55	<b>Testing And Monitoring</b>		
<b>NEMA standards and OSHA regulations help solve motor noise problems.</b>	March	92	<b>Testing Optical Fiber for Attenuation</b> <i>What is attenuation and how do you test for it in fiberoptic cable?</i>	Jan.	20
<b>New Regulations Assure Fire Pump Reliability</b> <i>Broad changes to NFPA 20, and a proposed new NEC Article, team up to clarify and simplify code rules regarding fire pump systems.</i>	April	30	<b>Automatic Tests Boost Pump Motor Reliability</b> <i>Compact test unit checks motor insulation resistance, greatly reducing maintenance costs.</i>	Jan.	26
<b>UL Revises MC Cable Standard</b> <i>Will Building Officials Write an Electrical Code?</i>	May	57	<b>Efficiency Testing of Premium-Efficiency Motors</b> <i>Nameplate efficiency values are worthless unless you know how they were derived.</i>	July	18
<b>Can Fire Risk from Old House Wiring be Reduced?</b>	May	164	<b>Testing Methods for UTP and Fiber</b> <i>Attenuation and NEXT test values are included in the proposed EIA/TIA 568-A standard; testing methods are not.</i>	Aug.	20
<b>Testing Methods For UTP and Fiber</b> <i>Attenuation and NEXT test values are included in the proposed EIA/TIA 568-A standard; testing methods are not.</i>	June	100	<b>Zone-Selective Interlocking for Low-Voltage Switchboards</b> <i>Benefits of Using a Harmonic Monitoring Program</i>	July	33
<b>New Standard for Portable Power Distribution Equipment</b> <i>Treat All Panelboards Alike?</i>	July	92	<b>Hipot Tests Assure Power Cable Reliability</b> <i>Acceptance testing is the key to dependable, long life for 15kV cable, newly installed at a large college.</i>	Sept.	25
<b>NFPA, CABO Agree On Code Process</b>	Aug.	20	<b>Effective Grounding of Electrical Systems-Part 2</b> <i>An understanding of the various ground resistance testing methods is essential for an electrical system to work correctly.</i>	Jan.	33
<b>CSA Considering IEC Focus</b>	Aug.	100		Feb.	59
	Oct.	100			
	Nov.	76			
	Dec.	84			
<b>Teledata And Fiberoptics</b>					
<b>Testing Optical Fiber for Attenuation</b> <i>What is attenuation and how do you test for it in fiberoptic cable?</i>	Jan.	20			